

Gaming Machine

CROSS-REFERENCE TO THE RELATED APPLICATIONS

This application is based upon and claims a priority from the prior

5 Japanese Patent Application No. 2002-316730 filed on October 30, 2002, the entire contents of which are incorporated herein by reference.

FIELD OF THE INVENTION

This invention relates to a gaming machine.

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RELATED ART

Video poker machines, slot machines, and other gaming machines are installed in casinos, etc. Those are equipped with a bill insertion slot for directly inserting bills instead of coins or medals. An example is disclosed in 15 Japanese Unexamined Patent Publication No. 09-106471.

With such a gaming machine, when a player runs out of coins, etc., on hand, the player will not have to stand up from his/her seat and go to a coin changer to change bills into coins, etc. The player can also continue to play a game without having to call game-hall staff.

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In many cases, at a lower position of such a bill insertion slot, a bill guide plate for guiding a bill into the bill insertion slot is provided. By providing such a bill guide plate, a player can insert a bill into the bill insertion slot more readily.

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However, in a game arcade, there are people who play games while taking a simple meal or drink and a drink may become spilled onto the bill guide plate by chance. There are also insolent persons who, on becoming irritated of not obtaining the desired game results, throws a drink in his/her

hand onto the gaming machine.

The bill guide plate has an upper surface that is relatively large in area and thus has a structure that may receive a spilled drink or other foreign matter more readily in comparison to other parts of the gaming machine in the above 5 circumstances. Furthermore, since the bill guide plate is disposed adjacent the bill insertion slot, the above-mentioned foreign matter may enter inside the bill insertion slot.

Since the entry of such foreign matter into the bill insertion slot leads to malfunction of the gaming machine, such a situation had to be prevented in 10 advance.

A gaming machine which has a bill guide plate with a drain hole has been considered for such a drawback. However, since the drain hole of this gaming machine is small, it tended to clog readily. Also, since the collected liquid was simply drained into a space opened below a cabinet, when a large 15 amount of liquid is spilled, contamination of the interior of the cabinet occurred due to the inadequate draining ability.

The present invention has been made in view of the foregoing. An object of the present invention is to provide a gaming machine, with which even when foreign matter is spilled onto a bill guide plate, the foreign matter 20 can be collected without getting on various devices inside a cabinet.

SUMMARY OF THE INVENTION

The present invention provides a gaming machine, with which a liquid or other foreign matter spilled onto a bill guide plate can be collected via slit 25 openings provided in the bill guide plate.

More specifically, the present invention provides the following.

(1) A gaming machine enabling the insertion of bills, the gaming

machine comprising: a cabinet; and a door, provided on a front face of the cabinet; wherein the door comprises: a bill insertion slot; a bill guide plate, extending outwards from a lower end of the bill insertion slot and having an opening; a guide part, positioned in a direction substantially right under the opening of the bill guide plate and guiding foreign matter from an exterior; and a container, disposed at the rear face of the door for collecting the foreign matter.

With the above-described aspect of the invention of (1), foreign matter from the exterior, which drops from the opening of the bill guide plate, can be collected in the container via the guide part to reduce the drawbacks of malfunction of various devices inside the cabinet due to foreign matter from the exterior. This effect is especially prominent in the case where the foreign matter is liquid.

With those in the related art, when liquid or other foreign matter was spilled onto the bill guide plate, the foreign matter flowed into the bill insertion slot, causing malfunction of the various devices in the interior.

Thus by providing the opening in the bill guide plate of the gaming machine and equipping the gaming machine with a container for recovery of the foreign matter that flows from the opening as in the present invention, the foreign matter can be prevented from flowing inside the bill insertion slot and accumulating inside the cabinet.

(2) The gaming machine according to (1) wherein an upper opening of the container is positioned in a substantially downward direction below the guide part and has a larger cross-sectional area than a cross section of the lower end part of the guide part.

With the above-described aspect of the invention of (2), the upper face opening of the container is positioned in a substantially downward direction

below the guide part and has a larger cross-sectional area than the cross section of the lower end part of the guide part. The foreign matter from the exterior that is guided from the guide part can thus be prevented from leaking out of the container and can be collected readily in the container.

5 (3) The gaming machine according to (1) or (2) wherein the container is detachably mounted to the rear face of the door.

With the above-described aspect of the invention of (3), the container is not formed integral to the rear face of the door but is mounted in a detachable manner. Thus even when foreign matter from the exterior accumulates in the 10 container, detachment can be performed relatively readily. The foreign matter from the exterior can thus be discarded from the container.

Also, since the container is mounted to the rear face of the door, the container can be detached simply by opening the door and without being affected by the existence of other devices.

15 (4) The gaming machine according to any one from (1) to (3) wherein the container is rectangular in horizontal cross-section, and one of long sides of the rectangular faces to the rear face of the door when container is mounted to the door.

With the above-described aspect of the invention of (4), the shape of 20 the container can be made extremely thin. This is thus excellent in terms of saving space within the cabinet and yet a relatively large amount of foreign matter can be collected in the containment part.

(5) The gaming machine according to any one from (1) to (4) wherein the container is formed of a substantially transparent or semi-transparent 25 material.

With the above-described aspect of the invention of (5), since the collected amount of foreign matter from the exterior that is collected in the

container can be directly viewed readily from the exterior of the container, the container will not have to be detached each time the timing for discarding the foreign matter from the exterior is to be checked.

5 (6) The gaming machine according to any one from (1) to (5) wherein a storage capacity of the container is one liter or less.

With the above-described aspect of the invention of (6), since the storage capacity of the container is approximately one liter or less, a spilled drink, etc., can be contained adequately and since there is no need to make available a large space for installing the container, the container can be 10 installed suitably, for example, at the rear side of the door.

Other features and advantageous of the invention will be apparent from the following description taken in connection with the accompanying drawings.

15 BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a front view of a slot machine of the present invention.

Fig. 2 is a partially enlarged view of an operating part of the present invention.

20 Fig. 3 is a diagram showing a state in which a door of the present invention is opened.

Fig. 4 is a perspective view of a bill guide plate of the present invention.

Fig. 5 is a longitudinal sectional view of a state in which the bill guide plate and a mounted body of the present invention are assembled together.

25 Fig. 6 is an exploded perspective diagram of a bill loading part of the present invention.

Fig. 7 is a partial view of the door as seen from the rear face side.

Fig. 8 is an exploded perspective diagram of a frame body of the

present invention.

PREFERRED EMBODIMENTS OF THE INVENTION

An embodiment of the present invention shall now be described with reference to the drawings. Though an application of the present invention to a slot machine shall be described as the embodiment, the present invention is not limited thereto and may be applied to various other gaming machines, such as video game machines, coin game machines, card game machines, etc.

The construction of a slot machine shall now be described.

Fig. 1 is a front view of a slot machine 1. At the front opening part of a cabinet 2 of slot machine 1, a door 3 is provided in a manner enabling opening and closing. Also, a top frame 4 is mounted on an upper part of cabinet 2. A decorative panel plate 41 is provided on the front face of top frame 4.

A display device 21, which displays gaming information, is installed inside the cabinet 2. In order to enable viewing of the display on the display device 21, a window is formed on an upper part of the cabinet 3. And in order to enable viewing of the display on the display device 21 and to protect display device 21, a transparent plate is mounted on the above-mentioned window. At both sides of the above-mentioned window are formed sound holes 902 (902L and 902R) that enable effect sounds or music generated according to gaming states to be heard readily.

At a central part of the front face of the door 3, an operating part 5 is disposed in a protruding manner. At an inclined face at the right side of operating part 5, various operation buttons are aligned and a coin slot 51, into which coins are loaded, is equipped. At the right side of the operating part 5 is equipped with a bill loading part 52 for guiding a bill to a bill validator housed inside the cabinet 2.

At a lower part of the operating part 5 is provided a frame 6, which is connected to the door 3 in a manner enabling opening and closing. A decorative panel plate 61 is enclosed in the frame 6. At a lower part of the frame 6 at a bottom part of the door 3 is formed a coin tray 30, which receives 5 coins.

Fig. 2 is an enlarged view of the operating part 5. The above-mentioned bill loading part 52 comprises a bill guide plate 52A and a mounting member 52B. The bill guide plate 52A and the mounting member 52B are integrated together and mounted to the operating part 5. The 10 mounting member 52B forms a part of the door 3.

Fig. 3 is a diagram showing a state in which the door 3 is opened. As shown in Fig. 3, the bill validator 22 and a bill stacker 23 are installed inside the cabinet 2. The bill validator 22 determines the truth/falseness or quality of a bill loaded from the bill loading part 52. The bill stacker 23 houses bills 15 validated by the bill validator 22. A bill guided by the bill loading part 52 is taken in by the bill validator 22 via a bill insertion slot 529.

Also, at the rear face side of the door 3, a drain bottle 7, which is a container, is mounted directly below the mounting member 52B.

Fig. 4 is a perspective view of the bill guide plate 52A. As shown in 20 Fig. 4, a plurality of substantially rectilinear slit openings 521 are formed in parallel as a plurality of openings in the bill guide plate 52A.

Slit openings 521 are disposed in parallel with each other. Slit openings 521 run along the direction from the bill insertion slot 529 to the outer side of the cabinet 2. The entirety of the opening of the slit opening 521 does not 25 comprise a hole that passes through bill guide plate 52A. That is, a slit opening 521 is an open groove having a bottom formed by an opening bottom part 600. By providing the bottom at a part of each slit opening, the inner

parts of the slit openings and the dropped foreign matter can be prevented from being seen readily by a player while securing an area for taking in foreign matter. Also, partition members 523 are formed on bill guide plate 52A. The partition members 523 partition each slit opening 521 into a plurality of small 5 slit openings 524. The position of the upper surface of a partition member 523 is slightly lower than a bill guide surface 522. And as shown in Fig. 4, the length of each small slit opening 524 partitioned by partition members 523 is formed to be smaller than the diameter of a coin 10 used in the gaming machine.

10 Fig. 5 is a longitudinal sectional view of a state in which the bill guide plate 52A and the mounting member 52B are assembled together. As shown in Fig. 5, the bill guide plate 52A is detachably mounted to a loading slot 520, which serves as a bill insertion space. Also, in order that a bill is taken in readily, the bill guide plate 52A extends outwards from the lower end of the bill 15 insertion slot 529 that is positioned at a lower side of the loading slot 520.

At the mounting member 52B, the peripheral walls that form loading slot 520 are connected to the cabinet2. The peripheral walls extends downwards and form a first opening 525 that opposes loading slot 520. The peripheral walls that form first opening 525 continue further downward and 20 form a second opening 526 that is open in the downward direction. The loading slot 520, first opening part 525, and second opening part 526 form a space of substantially pyramidal shape with the apex at the lower side. The bill guide plate 52A is formed so as to cover the first opening part 525 from above. The first opening part 525 and second opening part 526 are for 25 guiding liquid and other foreign matter that enter via the slit opening 521 from the exterior.

Fig. 6 is an exploded perspective diagram of the bill loading part 52.

As shown in Fig. 6, a protrusion 528A is formed on the rear wall of the bill guide plate 52A. A cylindrical protrusion 528B is formed on the front lower wall of the bill guide plate 52A. An internal thread is formed in the cylindrical protrusion 528B. Meanwhile, a groove 528C is formed in the rear inner wall of 5 the first opening part 525 of mounting member 52B. The bill guide plate 52A is assembled onto the mounting member 52B by inserting the protrusion 528A of the bill guide plate 52A into the groove 528C and tilting the bill guide plate 52A towards the mounting member 52B. The bill guide plate 52A can also be separated from the mounting member 52B by movement in the opposite 10 direction.

The bill guide plate 52A and mounting member 52B are made integral by fixing the cylindrical protrusion 528B of the bill guide plate 52A to the mounting member 52B utilizing a fixing screw BF1. The integrated bill guide plate 52A and mounting member 52B are then inserted in a notched part of a 15 control panel 50 of the operating part 5. The integrated bill guide plate 52A and mounting member 52B are then fixed by a fixing screw BF2 onto a mounting bracket 501, provided on the control panel 50, thus completing the assembly.

More specifically, as shown in Fig. 5, an edge of the control panel 50 is 20 inserted into a groove 527 formed in a front part of the mounting member 52B and the mounting member 52B is tilted towards control panel 50. And then a collar of the mounting member 52B comes in contact with the upper face of control panel 50. The mounting member 52B is then fixed to the control panel 50 by the fixing screw BF2 to attain the fixed state.

25 Fig. 7 is a partial view of door 3 as seen from the rear face side. As shown in Fig. 7, a drain bottle 7 is installed at the rear face side of door 3. An upper face opening 70 of the drain bottle 7 is positioned below a second

opening 526 of mounting member 52B. That is, the drain bottle 7 is installed so that the center of gravity of the upper face opening 70 of the drain bottle is substantially matched with the center of gravity of the second opening 526. Also, the upper face opening 70 of the drain bottle 7 is made larger in 5 cross-sectional area than the cross section of the second opening 526 at the lower end part.

Fig. 8 is an exploded perspective diagram of a frame body 6. As shown in Fig. 8, a frame plate 632 is formed to a generally "U"-like shape and houses a decorative panel plate 61. Also, a cover 62 is mounted to the frame 10 plate 632. At the left flank of the frame plate 632 is provided a cylinder lock 6A for locking or unlocking the frame body 6 to or from the door 3. At the right flank of the frame plate 632 is formed a through hole 633. A pivot 64 is inserted into the through hole 633 and the frame 6 is rotatably joined with the door 3. The decorative panel plate 61, cover 62, and frame plate 632 thus 15 open and close integrally.

At the back face of cover 62 are mounted two metal latches 71. Meanwhile, cylindrical pins 7A are protruded from the left and right side faces of the drain bottle 7. The pins 7A engage with the U-shaped grooves of the metal latches 71 and the drain bottle 7 is thereby put in the state in which it is 20 installed on the back face of the cover 62. Also, the engagement of the metal latches 71 and pins 7A can be disengaged by lifting up the drain bottle 7, and the drain bottle 7 can then be moved to another location. In the state in which the drain bottle 7 is installed on the frame body 6, the bottom face of the drain bottle 7 is positioned slightly above the bottom face of the frame body 6.

25 As shown in Fig. 8, the drain bottle 7 has a thin, laterally long shape. The drain bottle 7 is rectangular in horizontal cross-section in the part positioned below the upper face opening 70. The drain bottle 7 is mounted so

as to face its one of long sides of the rectangular to the rear face of the cover 62.

The drain bottle 7 is formed of a substance of substantially transparent or semi-transparent material (for example, glass or a synthetic resin). The 5 storage capacity of the drain bottle 7 is approximately one liter or less. Due to being approximately one liter or less in the storage capacity, the drain bottle 7 can adequately contain a drink, etc., that is spilled onto the bill guide plate 52A. Also the drain bottle 7 can be installed suitably, for example, at the rear side of the door 3 since there is no need to make available a large space for 10 installation.

The actions shall now be described. As described with Fig. 4, the bill guide plate 52A has a plurality of substantially rectilinear slit openings 521 formed in columns. Thus even when a drink or other foreign matter spills onto the bill guide plate, it can be collected through the slit openings 521. The 15 foreign matter will not get on the various devices inside the cabinet and breakage of the various devices can be prevented.

Also as shown in Fig. 5, the bill guide plate 52A has the form of a bag with an open bottom and the inner peripheral walls form inclined faces with which a solution or other foreign matter that is thrown in can fall readily by 20 gravity to the bottom face. Likewise, each of the first opening 525 of the mounting member 52B and the second opening 526, which continues from the first opening 525, has the form of a bag with an open bottom and the inner peripheral walls form inclined faces with which a solution or other foreign matter that is thrown in can fall readily by gravity to the bottom face.

25 That is, the first opening 525 and second opening 526, which are positioned in the direction substantially below the slit openings 521, form a guide part that guides a solution or other foreign matter from the exterior. And

by the drain bottle 7 equipped below the second opening 526 of the mounting member 52B as shown in Fig. 7, the foreign matter that is guided by the above-mentioned guide part can be collected in the drain bottle 7.

Foreign matter from the exterior, which enters from the slit openings 521 of the bill guide plate 52A can thus be collected in the drain bottle 7 via the above-described guide part. Drawbacks of malfunction of the various devices inside the cabinet 2 due to the foreign matter from the exterior can thus be reduced, and this effect is especially prominent in the case where the foreign matter is liquid.

10 Next, the actions of the arrangement illustrated in Fig. 7 shall be described. By the upper face opening 70 of the drain bottle 7 being greater in cross-sectional area than the cross section of the lower end part of the second opening 526, the foreign matter from the exterior that is guided from the mounting member 52B in Fig. 5 can be prevented from leaking out of the drain 15 bottle 7 and can be collected readily in the drain bottle 7.

Also, it was described with Fig. 8 that the metal latches 71 of the cover 62 and pins 7A of the drain bottle 7 can be engaged and disengaged. That is, the drain bottle 7 is not formed integrally on the rear face of the door 3 but is mounted in a detachable manner. Thus even when foreign matter from the 20 exterior accumulate in the drain bottle 7, the drain bottle 7 can be detached and the foreign matter can thus be discarded from drain bottle 7. Also, since the drain bottle 7 is mounted to the rear face of the door 3, the drain bottle 7 can be detached simply after opening the door 3 without being affected by the existence of other devices.

25 Also as shown in Fig. 8, the drain bottle 7 has a laterally long shape with which the horizontal cross section of the containment part positioned below the upper face opening 70 has a shape that is long in the lateral

direction. The drain bottle 7 of the above-mentioned lateral direction is mounted so as to be set along the rear face of the cover 62.

As described with Fig. 3, a bill validator 22 and a bill stacker 23 are disposed inside the cabinet 2. A coin guide 24 is also disposed inside the cabinet 2. Behind the coin guide 24 are mounted a printed circuit board for controlling the slot machine 1 and a shelf 25. Furthermore, an unillustrated hopper is disposed below the coin guide 24. Since the interior of the cabinet 2 is thus put in a crowded mounted state, a space by which the drain bottle 7 can protrude towards the interior of cabinet 2 does not exist.

Also as shown in Fig. 7, a coin allocating device, which allocates a coin loaded in from the coin slot 51 into the coin guide 24 or coin tray 30 is disposed adjacent mounting member 52B at the back face of door 3.

Thus in order to make the containment capacity of the drain bottle 7 large within such a limited space, drain bottle 7 is made thin and laterally long in shape. The drain bottle 7 is thus excellent in terms of saving space within the cabinet 2 and yet a relatively large amount of foreign matter can be collected in the containment part of the drain bottle 7 under the above-mentioned restrictions.

Also, as shown in Fig. 8, the drain bottle 7 is formed of a substance of substantially transparent or semi-transparent material (for example, glass or a synthetic resin). When the door 3 or frame body 6 is opened, the drain bottle 7 moves along with the door 3 or frame body 6, thus enabling the drain bottle 7 to be viewed. By forming the drain bottle 7 of a substance of substantially transparent or semi-transparent material, the foreign matter collected in the drain bottle 7 can be viewed readily. The collected amount can thus be recognized without having to detach the drain bottle 7 each time to check the timing for discarding the foreign matter from the exterior.

With the present invention, a gaming machine, equipped with a bill guide plate for guiding a bill into a bill insertion slot, is equipped with a guide part, guiding foreign matter from the exterior, in the direction substantially below a opening that is equipped by the bill guide plate, and is equipped with a 5 container, for collecting the foreign matter guided by the above-mentioned guide part, at the rear face side of the above-mentioned door. A foreign matter from the exterior, which drops from the opening of the bill guide plate, can thus be collected in the container via the guide part to reduce the drawbacks of malfunction of the various devices inside the cabinet due to 10 foreign matter from the exterior. This effect is especially prominent in the case where the foreign matter is liquid.

Also with the present invention, an upper face opening of the above-mentioned container is positioned in a substantially downward direction below the above-mentioned guide part and has a larger cross-sectional area 15 than the cross section of the lower end part of the guide part. The foreign matter from the exterior that is guided from the guide part can thus be prevented from leaking out of the container and can be collected readily in the container.

Furthermore with the present invention, the above-mentioned container 20 is mounted to the rear face side of the above-mentioned door and is mounted in a manner enabling detachment from the rear face of the above-mentioned door. The container is thus not formed integral to the rear face of the door but is mounted in a detachable manner. Thus when foreign matter from the exterior accumulate in the container, the container can be detached relatively 25 readily and the foreign matter from the exterior can be discarded from the container.

Also, with the present invention, the above-mentioned container has a

laterally long shape with which a containment part positioned below the upper opening has a horizontal cross section of a shape that is long in the lateral direction. And the container is mounted so that the above-mentioned lateral direction is set along the rear face of the above-mentioned door. The shape 5 of the container can thus be made extremely thin. This is thus excellent in terms of saving space within the cabinet and yet a relatively large amount of foreign matter can be collected in the containment part.

Furthermore with the present invention, by the above-mentioned container being made of a substantially transparent or semitransparent 10 material, the amount of foreign matter collected in the container can be viewed readily. The timing for discarding the foreign matter from the container can thus be recognized without having to detach and check the container each time.